

1 **THE EMBODIMENTS OF THE INVENTION IN WHICH AN**
2 **EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS**
3 **FOLLOWS:**

4
5 1. Apparatus for assisting in producing gas and water to ground surface from
6 a subterranean formation through a flowing well having a tubular production casing
7 string forming a longitudinal bore and having perforations in fluid communication
8 with the formation, comprising:

9 a tubular production tubing string forming a longitudinal bore and extending
10 down the casing string from ground surface;

11 a funnel forming the lower end of the tubing string, the funnel having a bottom
12 inlet and a longitudinal passageway extending therethrough;

13 the tubing string bore and the funnel passageway combining to form a
14 production bore;

15 the casing and tubing strings forming an annulus therebetween;

16 packer means, mounted on the tubing string above the funnel, for sealing
17 against the casing string to isolate the lower portion of the annulus beneath the packer
18 means from the upper portion of the annulus above the packer means;

19 the tubing string, funnel and packer means combining to form a structural unit;

20 and

21 a tube, carried by the unit, having an inlet communicating with the annulus
22 lower portion and an upwardly directed outlet communicating with the production
23 bore;

1 so that, in use, gas separates and accumulates as a column beneath the packer
2 in the annulus lower portion and displaces water from said annulus lower portion into
3 the production bore and gas travels from the column through the tube and is
4 discharged upwardly into the production bore for gas-lifting water to ground surface
5 through the production bore.

6

7 2. The apparatus as set forth in claim 1 comprising:

8 a restrictive orifice, forming the tube outlet, through which a jet of gas is
9 discharged from the tube.

10

11 3. The apparatus as set forth in claim 1 or 2 wherein:

12 the bottom inlet of the funnel is spaced below the packer.

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14 4. The apparatus as set forth in claim 1 or 2 wherein:

15 the bottom inlet of the funnel is spaced below the packer; and

16 the outlet of the tube is spaced above the bottom end of the funnel.

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